

FORM PTO-1390
REV. 5-93U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICEATTORNEYS DOCKET NUMBER
P00,1834**TRANSMITTAL LETTER TO THE UNITED STATES
DESIGNATED/ELECTED OFFICE (DO/EO/US)
CONCERNING A FILING UNDER 35 U.S.C. 371**

U.S. APPLICATION NO. (if known, see 37 CFR 1.5)

09/673905INTERNATIONAL APPLICATION NO.
PCT/EP98/02775INTERNATIONAL FILING DATE
12 May 1998PRIORITY DATE CLAIMED
22 April 1998

TITLE OF INVENTION

"SIGNALLING SYSTEM IN A SIGNALLING POINT"

APPLICANT(S) FOR DO/EO/US

Klaus GRADISCHNIG

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

- 1. ☒ This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.
 - 2. ☐ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.
 - 3. ☒ This express request to begin national examination procedures (35 U.S.C. 371(f)) at any time rather than delay.
 - 4. ☒ A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date.
 - 5. ☒ A copy of International Application as filed (35 U.S.C. 371(c)(2))
 - a. ☒ is transmitted herewith (required only if not transmitted by the International Bureau).
 - b. ☐ has been transmitted by the International Bureau.
 - c. ☐ is not required, as the application was filed in the United States Receiving Office (RO/US)
 - 6. ☒ A translation of the International Application into English (35 U.S.C. 371(c)(2)).
 - 7. ☒ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 5371(c)(3))
 - a. ☐ are transmitted herewith (required only if not transmitted by the International Bureau).
 - b. ☐ have been transmitted by the International Bureau.
 - c. ☐ have not been made; however, the time limit for making such amendments has NOT expired.
 - d. ☒ have not been made and will not be made.
 - 8. ☐ A translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).
 - 9. ☒ An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)).
 - 10. ☒ A translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).
- Items 11. to 16. below concern other document(s) or information included:
- 11. ☒ An Information Disclosure Statement under 37 C.F.R. 1.97 and 1.98; (PTO 1449, Prior Art, Search Report).
 - 12. ☒ An assignment document for recording. A separate cover sheet in compliance with 37 C.F.R. 3.28 and 3.31 is included.
(SEE ATTACHED ENVELOPE)
 - 13. ☒ A **FIRST** preliminary amendment.
 - ☐ A **SECOND** or **SUBSEQUENT** preliminary amendment.
 - 14. ☐ A substitute specification.
 - 15. ☐ A change of power of attorney and/or address letter.
 - 16. ☒ Other items or information:
 - a. ☒ Submittal of Drawings
 - b. ☒ **EXPRESS MAIL #EJ 077703907US**, dated October 23, 2000.

U.S. APPLICATION NO. (if known, see 37 C.F.R. 1.55)

09/673905

INTERNATIONAL APPLICATION NO.

PCT/EP98/02775

ATTORNEY'S DOCKET NUMBER

P00,1834

17. ☒ The following fees are submitted:**BASIC NATIONAL FEE (37 C.F.R. 1.492(a)(1)-(5):**

Search Report has been prepared by the EPO or JPO \$860.00

International preliminary examination fee paid to USPTO (37 C.F.R. 1.482) . . \$700.00

No international preliminary examination fee paid to USPTO (37 C.F.R. 1.482) but
international search fee paid to USPTO (37 C.F.R. 1.445(a)(2)) \$770.00Neither international preliminary examination fee (37 C.F.R. 1.482) nor international
search fee (37 C.F.R. 1.445(a)(2)) paid to USPTO \$1040.00International preliminary examination fee paid to USPTO (37 C.F.R. 1.482) and all
claims satisfied provisions of PCT Article 33(2)-(4) \$ 96.00**ENTER APPROPRIATE BASIC FEE AMOUNT =**

CALCULATIONS

PTO USE ONLY

\$ 860.00

Surcharge of \$130.00 for furnishing the oath or declaration later than ☐ 20 ☐ 30 months
from the earliest claimed priority date (37 C.F.R. 1.492(e)).

\$

Claims

Number Filed

Number
Extra

Rate

Total Claims

10 - 20 =

X \$ 18.00

\$.00

Independent Claims

2 - 3 =

X \$ 80.00

\$.00

Multiple Dependent Claims

\$270.00 +

\$

TOTAL OF ABOVE CALCULATIONS =

\$ 860.00

Reduction by 1/2 for filing by small entity, if applicable. Verified Small Entity statement must
also be filed. (Note 37 C.F.R. 1.9, 1.27, 1.28)

\$

SUBTOTAL =

\$ 860.00

Processing fee of \$130.00 for furnishing the English translation later than ☐ 20 ☐ 30 months
from the earliest claimed priority date (37 CFR 1.492(f)).

\$

+

TOTAL NATIONAL FEE =

\$ 860.00

Fee for recording the enclosed assignment (37 C.F.R. 1.21(h)). The assignment must be
accompanied by an appropriate cover sheet (37 C.F.R. 3.28, 3.31). \$40.00 per property +

\$

+

TOTAL FEES ENCLOSED =

\$ 860.00

Amount to be
refunded

\$

charged

\$

a. ☒ A check in the amount of \$ 860.00 to cover the above fees is enclosed.b. ☐ Please charge my Deposit Account No. _____ in the amount of \$ _____ to cover the above fees. A
duplicate copy of this sheet is enclosed.c. ☒ The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any
overpayment to Deposit Account No. 501519. A duplicate copy of this sheet is enclosed.NOTE: Where an appropriate time limit under 37 C.F.R. 1.494 or 1.495 has not been met, a petition to revive (37 C.F.R. 1.137(a) or (b)) must be
filed and granted to restore the application to pending status.

SEND ALL CORRESPONDENCE TO:

Schiff Hardin & Waite
Patent Department
6600 Sears Tower
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SIGNATURE

Melvin A. Robinson

NAME

31,870

Registration Number

422 Rec'd PCT/PTO 23 OCT 2000

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IN THE UNITED STATES ELECTED OFFICE
OF THE UNITED STATES PATENT AND TRADEMARK OFFICE
UNDER THE PATENT COOPERATION TREATY-CHAPTER II

"PRELIMINARY AMENDMENT"

5 APPLICANT: Klaus GRADISCHNIG

SERIAL NO.: EXAMINER:

FILING DATE: ART UNIT:

INTERNATIONAL APPLICATION NO.: PCT/EP98/02775

INTERNATIONAL FILING DATE: 12 May 1998

10 INVENTION: SIGNALLING SYSTEM IN A SIGNALLING POINT

Hon. Assistant Commissioner for Patents
Box PCT
Washington D.C. 20231

SIR:

15 Amend the above-identified international application before entry into the
national stage before the U.S. Patent & Trademark Office under 35 U.S.C. §371
as follows:

IN THE SPECIFICATION

On page 1, before the title, insert --

20 SPECIFICATION

TITLE--;

after the title, insert --

BACKGROUND OF THE INVENTION

Field of the Invention

The present invention is related generally to a signalling system and in particular to an apparatus and method in by which a signalling point communicates with itself using loops.--;

5 before line 2, insert --

Description of the Related Art--;

after line 22, insert --

SUMMARY OF THE INVENTION--;

10 in line 25, delete "a system according to claim 1." and insert --a signalling means for processing signalling messages, including links via which the signalling means is connected to other signalling means, at least one signalling system that sends signalling messages to other signal means or, respectively, receives signalling messages from these via said links, a signalling system that respectively allocates a signalling network identity to a link; and at least one link that is
15 returned in a loop from the signalling point to the same signalling point, what is referred to as a loop link, whereby different signalling network identities are allocated to the loop link at the output and input side by the signalling system.--;

after line 25, insert --

BRIEF DESCRIPTION OF THE DRAWINGS

20 Figure 1 is a schematic diagram which shows an embodiment of the invention for the interworking in a signalling point;

Figure 2 is a schematic diagram which shows an embodiment of the invention for the load generation;

25 Figure 3 shows routing tables in the point codes X, 1 and 3 belonging to the embodiment in Figure 2, i.e. in the different networks of the signalling point supported by the system;

Figure 4 is a block diagram which shows an embodiment of the invention for the interworking in combined broadband and narrowband systems;

Figure 5 is a schematic diagram which shows an embodiment of the invention wherein an operator offers inter-network STP services to a number of other network operators; and

Figure 6 shows routing tables belonging to the embodiment in Figure 5.--;

after line 27, insert --

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS--.

On page 2, in line 1, delete "said" and insert --the--.

On page 3, in line 1, delete "Said" and insert --The--;
in line 10, delete "[sic]"; and
in line 15, delete "said" and insert --the--.

On page 4, in line 26, delete "[sic]".

On page 5, in line 4, delete "[!!!!!!!]";
in line 16, before "primary" insert --a--; and
after line 22, add the following new paragraph --

Although other modifications and changes may be suggested by those skilled in the art, it is the intention of the inventors to embody within the patent warranted hereon all changes and modifications as reasonably and properly come within the scope of their contribution to the art.--.

IN THE CLAIMS

On substitute page 6, line 1, change "New Patent Claims" to --I Claim:--.

Amend claim 1 as follows:

1. (Amended) [Signalling means] A signalling apparatus for processing
2 signalling messages, comprising
-- links via which the signalling [means] apparatus is connected to other
4 signalling [means] apparatus.
-- at least one signalling system that sends signalling messages to the other
6 signal [means] apparatus or, respectively, receives signalling messages
from the other signalling apparatus [these] via said links,
8 [characterized by]
-- [a] said signalling system that respectively allocates a signalling network
10 identity to said links [a link];
-- at least one of said links that is returned in a loop from [the] a signalling
12 point to the [same] signalling point[, what is referred to] as a loop link,
[whereby] different signalling network identities being [are] allocated to
14 the loop link at [the] an output and input side by the signalling system.

- 2.(Amended) [Signalling means] A signalling apparatus according to
2 claim 1, [characterized in that] wherein said signalling system, with [the]
assistance of a said loop link[,], communicates signalling messages between two
4 other signalling systems contained in the signalling [means] to which is
respectively provided [comprises] an interface.

- 3.(Amended) [Signalling means] A signalling apparatus according to
2 claim 1, [characterized in that] wherein said signalling system generates internal
load for test purposes with [the] assistance of [at least one] said loop link.

4.(Amended) [Signalling means] A signalling apparatus according to
2 claim 1, wherein [characterized in that] said signalling system realizes an
interworking [Internetworking /sic/] communication with other networks with
4 [the] assistance of a said loop link.

5.(Amended) [Signalling means] A signalling apparatus according to [one
2 of the claims] claim 1 [through 4], wherein [characterized in that] said signalling
system is a signalling system according to No. 7 and allocates [the] a same
4 network identifier [(NI)] to said loop link at the output and input side.

6.(Amended) [Method] A method for signalling in a signalling means,
2 comprising the steps of: [in accord wherewith]
-- [a signalling system of the signalling means allocates] allocating signalling
4 network identities to [the] links of [the] a signalling [means] apparatus by
a signalling system;
6 -- [the signalling system allocates] allocating different signalling network
identities at [the] an output and input side to a link[, what is referred to] as
8 [the] a loop link[,] that is returned from the signalling apparatus [means] to
[the] a same signalling means in a loop.

2 7.(Amended) [Method] A method according to claim 6, further comprising
4 the steps of: employing [characterized in that a] said loop link [is employed] by
said signalling system [in order] to communicate signalling messages between
two further signalling systems of the signalling means having [to which it
comprises] a respective interface.

2 8.(Amended) [Method] A method according to claim 6, further comprising
4 the step of: employing [characterized in that a] said loop link [is employed] by
said signalling system to generate load for test purposes.

2 9.(Amended) [Method] A method according to claim 6, further comprising
4 the steps of: employing [characterized in that a] said loop link [is employed] by
said signalling [in order] to enable [a desired Internetworking [sic]] with other
networks [for a network].

2 10.(Amended) [Method] A method according to [one of the claims] claim
4 6 [through 9], further comprising the steps of: [characterized in that a common NI
is allocated] to [a] said loop link at [the] an output and input side by said
signalling system.

IN THE ABSTRACT

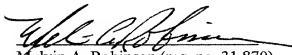
Delete lines 2 and 8.

REMARKS

The foregoing amendments to the specification and claims under Article
41 of the Patent Cooperation Treaty place the application into a form for
prosecution before the U.S. Patent and Trademark Office under 35 U.S.C. §371.

Accordingly, entry of these amendments before examination on the merits is hereby requested.

Respectfully submitted,

A handwritten signature in dark ink, appearing to read 'Melvin A. Robinson', is written over the printed name.

Melvin A. Robinson (reg. no. 31,870)
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ATTORNEY FOR APPLICANT

G/prts.
(2 sets of drawings)

09/673905

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SIGNALLING SYSTEM IN A SIGNALLING POINT

In channel-related signalling systems, for example in the signalling system R5, it is possible that a signalling point communicates or, respectively, sets up a connection with itself via a payload channel loop. This is not possible in the signalling system ZGS7 (see below). However, such loops are advantageous for solving a number of problems. For the interworking of different signalling systems, it is a critical simplification in the realization when all signalling systems interwork with a selected signalling system and not each with each. Further, such loops are advantageous in order to be able to test systems with high traffic. Finally, monitors can be attached to such loops. Different traffic flows can then be supplied for observation on the basis of purely administrative measures (without hardware re-strapping).

In ZGS7, a signalling point is identified by an address, what is referred to as the signalling point code. The level 3 of the message transfer parts cannot send a message to its own signalling point code or, respectively, cannot receive a message from itself. Certain users of the message transfer part, for example TUP and ISUP, can also normally not send channel-related messages to themselves, even if the message transfer part were to enable this. In order to nonetheless enable such loops, specific methods have been implemented that are essentially comprised therein that specific signalling channels form loops on which destination and/or sender address are inverted/complemented. Similar, user-specific modifications must be potentially implemented for users.

The invention is based on the object or enabling loop formation without said disadvantages.

This object is achieved by a system according to claim 1.

The invention is explained in greater detail below with the assistance of the drawing, whereby the drawing comprises six Figures.

In ZGS7, a network is identified by what is referred to as a network indicator (NI) that is contained in the messages. 2 bits for the NI are reserved in the messages; up to four networks can thus be distinguished from one another in a node

(said networks can, for example, be a matter of the signalling networks of communication networks of different operators or different technologies (for example, broadband or narrowband) as well as a matter of national or, respectively, international signalling networks). Since a signalling link normally belongs to only one network, however, the perception has prevailed that allocating individual links to specific networks suffices for distinguishing the network. The NI is thus no longer required as a distinguishing feature.

In fact, there are communication systems that support more than four signalling networks (for example, 8 or 32), for example the EWSD system of Siemens AG, or such systems are being planned. A network identity is thereby internally allocated to each signalling link and an NI is externally allocated to each internal network identity. Networks with different internal identity can thereby definitely use the same external NI. Each (internal) network is thereby completely separated from the other networks.

This concept, what is referred to as the multiple network concept, is then employed for operating loops in ZGS7 without requiring additional development. The signalling system in a signalling point is identified in two (internal) networks by different point codes. These two networks can then be unproblematically connected to one another by signalling links. When a check of the incoming NI for correctness is implemented in the system or, respectively, in at least one of the two networks to be interworked with one another, then the same external NI must also be allocated to the two internal networks. Note: when there is no mapping of incoming linkset onto NI and different networks must be monitored by a single, shared network entity (protocol realization), the NI therefor must be taken to identify the "responsible" network (the applicable routing table). Without a check, for example, it is thereby possible that a message from one network is illegally forwarded into another network due to the employment of an incorrect NI, which can lead to disadvantageous behavior in the other network (this could be referred to as *uncontrolled* tunneling since it is externally triggered and can no longer be controlled in the node).

Said arrangement is referred to below as network or, respectively, signalling tunnel. Embodiments of the invention are explained in greater detail below.

Figure 1 shows an embodiment of the invention for the interworking in a
5 signalling point.

An ISUP is located both in the internal network 1 as well as 2. Externally, the two networks use the same NI but different point codes. A call between R1 and R2 is routed via the ISUP loop. It suffices for this purpose to correspondingly
10 configure the ZGS7 routing tables in both networks as well as the routing tables for the call processing (R1 and R2 in ISUP) and to accomplish [sic] the necessary trunks and signalling tunnels for the ISUP loop.

An interworking is realized between CCITT signalling system R1 and ISUP as well as between CCITT signalling system R2 and ISUP but not between R1 and R2. A call that is supposed to run from R1 to R2 is first handed over outgoing to
15 the ISUP by the call processing, said ISUP routing the MSU belonging to this connection setup via the signalling tunnel to the ISUP of the other network. Coming from R1, thus, the call is thus first handed over to the ISUP in network 1. Using the called party address signalled by R1, the ISUP determines the next destination with the appertaining DPC (DPC=9), enters this DPC into the MSUs and then hands over
20 these MSUs to the MTP of ZGS7. The MTP takes the DPC from the MSUs and, on the basis of its routing table for network 1, determines the link (a loop link) therefrom via which it further-routes the MSU. The ISUP in network 2 receives the MSUs from the MTP and in turn hands over the MSUs and, thus, the call to the call processing. On the basis of its routing table, the call processing then determines that the call is
25 forwarded via R2.

Figure 2 shows an embodiment of the invention for the load generation.

Figure 3 shows routing tables in the point codes X, 1 and 3 belonging to the embodiment in Figure 2, i.e. in the different networks of the signalling point supported by the system.

For example, 6 networks are established in the system and cyclically
30 connected to one another by network tunnels. Two networks (networks 2 and 3 here)

are also connected to a protocol test device that emulates a point code (X and Y here) in each of the two networks. All networks employ the same NI.

These routing tables in the networks in the system are configured such that network 3 routes MSUs that contain a destination point code $PC=X$ to network 4, and network 4 routes them farther to network 5, etc. The routing tables are analogously configured in the opposite direction for $PC=Y$. A message generated by the test device is thus routed through the system six times, as a result whereof high system loads can be generated with relatively simple test devices. Further variations of this application are the incorporation of the users (for example, ISUP) or, on the other hand, completely closed loops wherein MSUs constantly circulate.

Figure 4 shows an embodiment of the invention for the interworking in combined broadband and narrowband systems.

The SSNC is the shared MTP platform in the EWSD broadband node. B-ISUP is located only in the EWSX part, N-ISUP in the EWSD and EWSX. In order to enable an NNI (trunk) interworking in the EWSD broadband node bet. broadband and narrowband without additional development, the interworking between N-ISUP in the EWSD and N-ISUP in the system EWSX can be achieved by the described signalling tunnel.

Figure 5 shows an embodiment of the invention wherein an operator (for example, D1) offers inter-network STP services to a number of other network operators (for example, D2, E+, E2). This exemplary embodiment can be employed for certain practically relevant expressions of the incoming linkset/DPC screening (see Q.706, §8).

D1 should thereby be able to interwork with all other networks, D2 with D1 and E+, E+ with D1 and D2, and E2 only with D1. This function can be solved [sic] with a plurality of internal networks connected by tunnels. A separate internal network is thereby allocated to the links to a respective network operator. The individual networks are connected by tunnels in conformity with the allowed signalling relationships. The routing tables in the individual networks are configured in conformity with the allowed relationships.

Alternatively, the traffic between the networks can also be routed via an internal transition network (see the example from Figure 1). This has the advantage that fewer tunnels are potentially required. On the other hand, traffic between the networks then gotta go through two tunnels. [!!!!!!!!!] It is thereby probable in this embodiment that the internal networks are based on a common external address space, i.e. that there's really only one network externally. In our example, this network would be what is referred to as the network interworking. Seen from the outside, the different internal networks look like separate STP connected to one another according to the rules.

10 Figure 6 shows routing tables belonging to the embodiment in Figure 5.

 These routing tables in the four logical internal networks of the signalling point show allowed primary and, potentially, secondary routes to the respectively other networks, whereby these routes are identified by the respectively next point code. The row marked with D2 in the first table, for example, thereby symbolically stands for all destinations (point codes) in D2 that are allowed to be selected

15 proceeding from D1. The direct link(set) to $P_c=b$ is thereby taken as primary route. If this link(set) happens to have failed, the route via $P_c=c$ can be taken as secondary route since a route to D2 is also present therefrom. The "external" routes, for example from $P_c=a$ into the D1 network, are not recited here since they're not relevant.

20 The explained embodiments of the invention have shown that an existing mechanism ("multiple networks") can be employed without additional outlay for a number of applications as a result of the inventive configuration.

New Patent Claims

1. Signalling means for processing signalling messages, comprising

-- links via which the signalling means is connected to other signalling means,

5 -- at least one signalling system that sends signalling messages to other signal means or, respectively, receives signalling messages from these via said links,

characterized by

-- a signalling system that respectively allocates a signalling network identity to a link;

-- at least one link that is returned in a loop from the signalling point to the same signalling point, what is referred to as a loop link, whereby different signalling network identities are allocated to the loop link at the output and input side by the signalling system.

15 2. Signalling means according to claim 1, characterized in that said signalling system, with the assistance of a said loop link, communicates signalling messages between two other signalling systems contained in the signalling means to which is respectively comprises an interface.

3. Signalling means according to claim 1, characterized in that said signalling system
20 generates internal load for test purposes with the assistance of at least one said loop link.

4. Signalling means according to claim 1, characterized in that said signalling system realizes an Internetworking [sic] with other networks with the assistance of a said loop link.

25 5. Signalling means according to one of the claims 1 through 4, characterized in that said signalling system is a signalling system according to No. 7 and allocates the same network identifier (NI) to said loop link at the output and input side.

6. Method for signalling in a signalling means, in accord wherewith

- a signalling system of the signalling means allocates signalling network identities to the links of the signalling means;
- the signalling system allocates different signalling network identities at the output and input side to a link, what is referred to as the loop link, that is returned from the signalling means to the same signalling means in a loop.

5

7. Method according to claim 6, characterized in that a said loop link is employed by said signalling system in order to communicate signalling messages between two further signalling systems of the signalling means to which it comprises a respective interface.

10

8. Method according to claim 6, characterized in that a said loop link is employed by said signalling system to generate load for test purposes.

9. Method according to claim 6, characterized in that a said loop link is employed by said signalling in order to enable a desired Internetworking [sic] with other networks for a network.

15

10. Method according to one of the claims 6 through 9, characterized in that a common NI is allocated to a said loop link at the output and input side by said signalling system.

Abstract

Signalling System in a Signalling Point

- Loops via which a signalling point communicates with itself are advantageous for solving various problems. According to the invention, a loop is
- 5 enabled by a link that is returned in a loop from a signalling point to the same signalling point and to which two different signalling network identities are allocated at the output and input side.

Figure 5



FIG 1: Interworking via ISUP

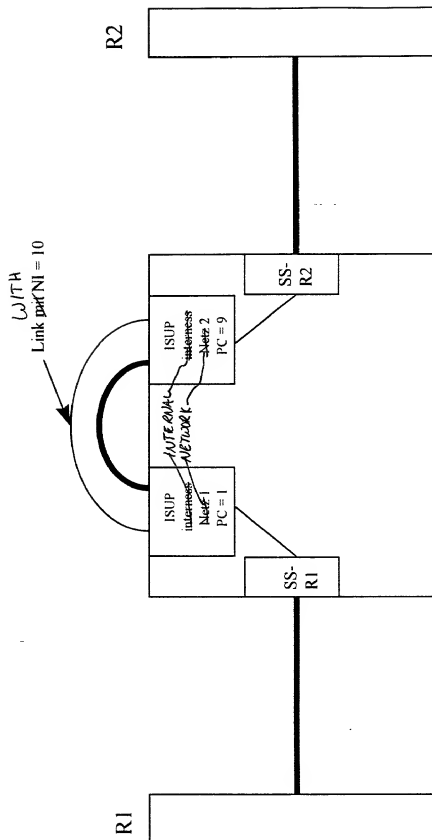
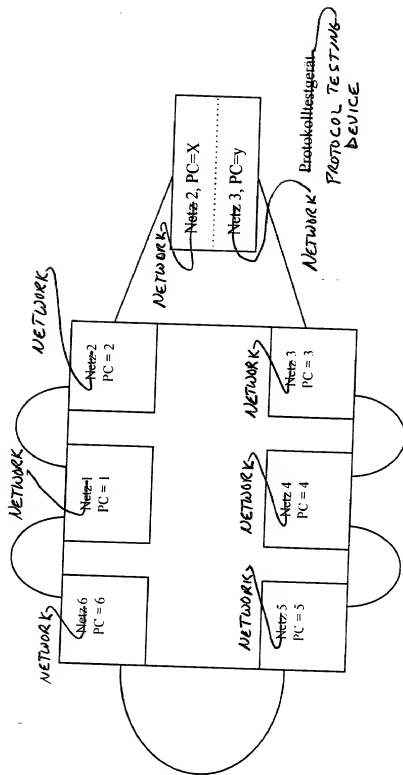


FIG 2: Lastgenerierung (LOAD GENERATOR)



TABLES FOR EXAMPLE LOAD GENERATOR
 FIG 3: Routing Tabellen zum Beispiel in FIG 2 (Lastgenerierung)
 für Pointcode X, 1 und 3
 für Pointcode

Routing Tabelle in Pointcode X
 (Pointcode)

Zum Pointcode To Pointcode	versandete direkte Linkset zu Pointcode
X	--
Y	2
1	2
2	2
3	2
4	2
5	2
6	2

Routing Tabelle in Pointcode 1
 (Pointcode)

Zum Pointcode To Pointcode	versandete direkte Linkset zu Pointcode
X	2
Y	6
1	--
2	2
3	6
4	6
5	6
6	6

Routing Tabelle in Pointcode 3
 (Pointcode)

Zum Pointcode To Pointcode	versandete direkte Linkset zu Pointcode
X	4
Y	Y
1	4
2	4
3	--
4	4
5	4
6	4

EMPLOY DIRECT LINK
 SET TO POINT CODE

EMPLOY DIRECT LINK
 SET TO POINT CODE

FIG 4: Interworking in Combined Broadband and Narrow Band System
(EWSD Broadband Node)

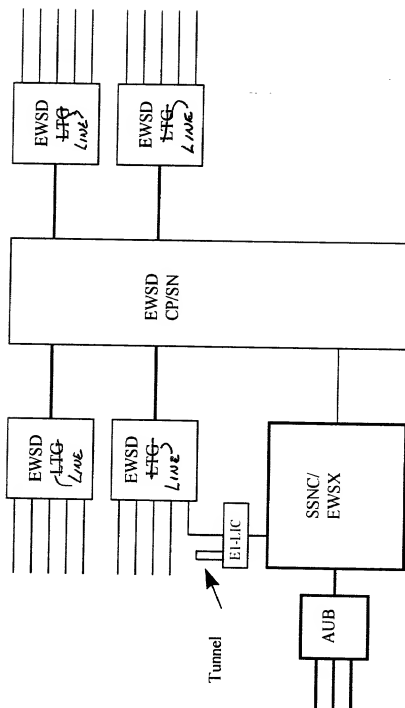


FIG 5: Incoming Linkset/DPC Screening

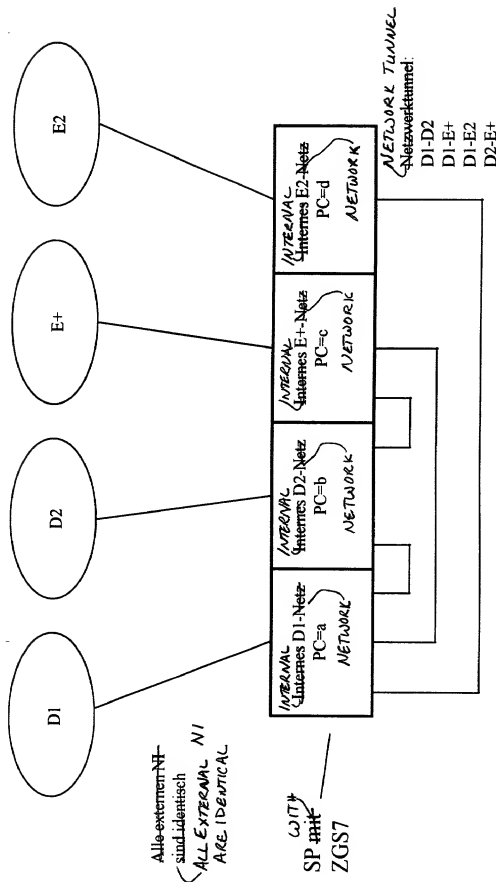


FIG. 6: Routing Tables for Tunnel-Routing

TABLES FOR EXAMPLE
 FIG 6: Routing Tabellen zum Beispiel in FIG 5 (Incoming Linkset/DPC Screening) für Tunnel-Routing

D1		
D2	b	c
E+	c	b
E2	d	--

D2		
D1	a	c
E+	c	a
E2	--	--

E+		
D1	a	b
D2	b	a
E2	--	--

E2		
D1	a	--
D2	--	--
E+	--	--

Declaration and Power of Attorney For Patent Application

Erklärung Für Patentanmeldungen Mit Vollmacht

German Language Declaration

Als nachstehend benannter Erfinder erkläre ich hiermit
an Eides Statt

As a below named inventor, I hereby declare that:

dass mein Wohnsitz, meine Postanschrift, und meine
Staatsangehörigkeit den im Nachstehenden nach
meinem Namen aufgeführten Angaben entsprechen,

My residence, post office address and citizenship are
as stated below next to my name,

dass ich, nach bestem Wissen der ursprüngliche,
erste und alleinige Erfinder (falls nachstehend nur ein
Name angegeben ist) oder ein ursprünglicher, erster
und Miterfinder (falls nachstehend mehrere Namen
aufgeführt sind) des Gegenstandes bin, für den dieser
Antrag gestellt wird und für den ein Patent beantragt
wird für die Erfindung mit dem Titel:

I believe I am the original, first and sole inventor (if
only one name is listed below) or an original, first and
joint inventor (if plural names are listed below) of the
subject matter which is claimed and for which a patent
is sought on the invention entitled

Signalisierungs-System in einem
Signalisierungspunkt
deren Beschreibung

(zutreffendes ankreuzen)

☒ hier beigefügt ist.

☐ am _____ als

PCT internationale Anmeldung

PCT Anmeldungsnummer _____

eingereicht wurde und am _____

abgeändert wurde (falls tatsächlich abgeändert).

the specification of which

(check one)

☐ is attached hereto.

☐ was filed on _____ as

PCT international application

PCT Application No. _____

and was amended on _____

(if applicable)

Ich bestätige hiermit, dass ich den Inhalt der obigen
Patentanmeldung einschliesslich der Ansprüche
durchgesehen und verstanden habe, die eventuell
durch einen Zusatzantrag wie oben erwähnt abgeän-
dert wurde.

I hereby state that I have reviewed and understand the
contents of the above identified specification,
including the claims as amended by any amendment
referred to above.

Ich erkenne meine Pflicht zur Offenbarung irgendwel-
cher Informationen, die für die Prüfung der vorliegen-
den Anmeldung in Einklang mit Absatz 37, Bundes-
gesetzbuch, Paragraph 1.56(a) von Wichtigkeit sind,
an

I acknowledge the duty to disclose information which
is material to the examination of this application in
accordance with Title 37, Code of Federal
Regulations, §1 56(a).

Ich beanspruche hiermit ausländische Prioritätsvor-
teile gemäss Abschnitt 35 der Zivilprozessordnung der
Vereinigten Staaten, Paragraph 119 aller unten ange-
gebenen Auslandsanmeldungen für ein Patent oder
eine Erfindersurkunde, und habe auch alle Auslands-
anmeldungen für ein Patent oder eine Erfindersurkun-
de nachstehend gekennzeichnet, die ein Anmelde-
datum haben, das vor dem Anmeldedatum der
Anmeldung liegt, für die Priorität beansprucht wird.

I hereby claim foreign priority benefits under Title 35,
United States Code, §119 of any foreign application(s)
for patent or inventor's certificate listed below and
have also identified below any foreign application for
patent or inventor's certificate having a filing date
before that of the application on which priority is
claimed.

German Language Declaration

Prior foreign applications
Priorität beansprucht

Priority Claimed

98 107 336.4 ✓ Germany(EP) 22. April 1998
(Number) (Country) (Day Month Year Filed)
(Nummer) (Land) (Tag Monat Jahr eingereicht)

☒ ☐
Yes No
Ja Nein

(Number) (Country) (Day Month Year Filed)
(Nummer) (Land) (Tag Monat Jahr eingereicht)

☐ ☐
Yes No
Ja Nein

(Number) (Country) (Day Month Year Filed)
(Nummer) (Land) (Tag Monat Jahr eingereicht)

☐ ☐
Yes No
Ja Nein

Ich beanspruche hiermit gemäss Absatz 35 der Zivilprozessordnung der Vereinigten Staaten, Paragraph 120, den Vorzug aller unten aufgeführten Anmeldungen und falls der Gegenstand aus jedem Anspruch dieser Anmeldung nicht in einer früheren amerikanischen Patentanmeldung laut dem ersten Paragraphen des Absatzes 35 der Zivilprozessordnung der Vereinigten Staaten, Paragraph 122 offenbart ist, erkenne ich gemäss Absatz 37, Bundesgesetzbuch, Paragraph 1.56(a) meine Pflicht zur Offenbarung von Informationen an, die zwischen dem Anmeldedatum der früheren Anmeldung und dem nationalen oder PCT internationalen Anmeldedatum dieser Anmeldung bekannt geworden sind.

I hereby claim the benefit under Title 35, United States Code, §120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, §122, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, §156(a) which occurred between the filing date of the prior application and the national or PCT international filing date of this application.

(Application Serial No.)
(Anmeldeserienummer)

(Filing Date)
(Anmeldedatum)

(Status)
(patentiert, anhängig,
aufgegeben)

(Status)
(patented, pending,
abandoned)

(Application Serial No.)
(Anmeldeserienummer)

(Filing Date)
(Anmeldedatum)

(Status)
(patentiert, anhängig,
aufgeben)

(Status)
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Ich erkläre hiermit, dass alle von mir in der vorliegenden Erklärung gemachten Angaben nach meinem besten Wissen und Gewissen der vollen Wahrheit entsprechen, und dass ich diese eidesstattliche Erklärung in Kenntnis dessen abgebe, dass wissentlich und vorsätzlich falsche Angaben gemäss Paragraph 1001, Absatz 18 der Zivilprozessordnung der Vereinigten Staaten von Amerika mit Geldstrafe belegt und/oder Gefängnis bestraft werden können, und dass derartig wissentlich und vorsätzlich falsche Angaben die Gültigkeit der vorliegenden Patentanmeldung oder eines darauf erteilten Patentes gefährden können.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and further that these statements were made with the knowledge that wilful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such wilful false statements may jeopardize the validity of the application of any patent issued thereon.

German Language Declaration

VERTRETUNGSVOLLMACHT: Als benannter Erfinder beauftrage ich hiermit den nachstehend benannten Patentanwalt (oder die nachstehend benannten Patentanwälte) und/oder Patent-Agenten mit der Verfolgung der vorliegenden Patentanmeldung sowie mit der Abwicklung aller damit verbundenen Geschäfte vor dem Patent- und Warenzeichenamt: (Name und Registrationsnummer anführen)

POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith. (list name and registration number)

And I hereby appoint

Messrs. John D. Simpson (Registration No. 19,842), Lewis T. Steadman (17,074), William C. Stueber (16,453), P. Phillips Connor (19,259), Dennis A. Gross (24,410), Marvin Moody (16,549), Steven H. Noll (28,682), Brett A. Valiquet (27,841), Thomas I. Ross (28,275), Kevin W. Guyann (29,927), Edward A. Lehmann (22,312), James D. Hobart (24,149), Robert M. Barrett (20,142), James Van Santen (18,584), J. Arthur Gross (13,615), Richard J. Schwarz (13,472), and Melvin A. Robinson (31,870), David R. Metzger (32,919), John R. Garrett (27,888), all members of the firm of Hill, Steadman & Simpson, A Professional Corporation.

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(Name und Telefonnummer)

Direct Telephone Calls to: (name and telephone number)

312/876-0200

Ext. _____

Postanschrift:

Send Correspondence to:

HILL, STEADMAN & SIMPSON
A Professional Corporation
85th Floor Sears Tower, Chicago, Illinois 60606

Voller Name des einzigen oder ursprünglichen Erfinders.

Full name of sole or first inventor

Klaus Gradischnick

Unterschrift des Erfinders

Datum

Inventor's signature

Date

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Full name of second joint inventor, if any:

Unterschrift des Erfinders

Datum

Second Inventor's signature

Date

Wohnsitz

Residence

Staatsangehörigkeit

Citizenship

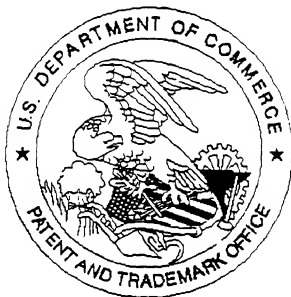
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1 extra drawings

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